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RAIL-ROAD NEWS.

Railroads in Russia.

The great railroad which was built by American engineers between St. Petersburg and Moscow is 400 miles long, and has a double track the whole length. It is substantially built, and the trains run at the rate of 30 miles per hour. For regularity and speed it perhaps has no equal in our country. As in all monarchical countries, there are cars of different grades for the people of different classes. For the first class of cars, the price of a ticket for the 400 miles is fifteen dollars, for the second class it is ten dollars, for the third six dollars. The grandees only ride in the first class ot cars, the peasants in the third class, and the free merchants in the middle class. Messrs. Winans, of Baltimore, have a contract for twelve years to keep all the cars, engines, &c., in good running order, and to leave them all in good condition at that time.

Louisville and Nashville Railroad.

According to a survey made of the line of railroad from Nashville to Louisville, the approximate cost of the whole road, completed and in running order, with equipments, depots, &c., is $5,000,000. Louisville has already subscribed $1,000,000, and a like sum will have to be subscribed in Tennessee, to commence the improvement. Sumner County has voted a subscription of $300,000, and Davidson County where an election has not yet been held, is assessed for $500,000.

Delaware Railroad.

The Delaware Railroad from Dona to Nanticoke, in the direct line for Norfolk, is steadily progressing. The whole line has been put under contract at prices greatly below the original estimates, the road being found, by survey and level, to be unequalled in right lines and low grades by any other, perhaps, ever laid out. The cost of the road will be $306,000, two-thirds of which has been subscribed. This road will open the entire peninsula of Delaware and Eastern Maryland and Virginia to Philadelphia.

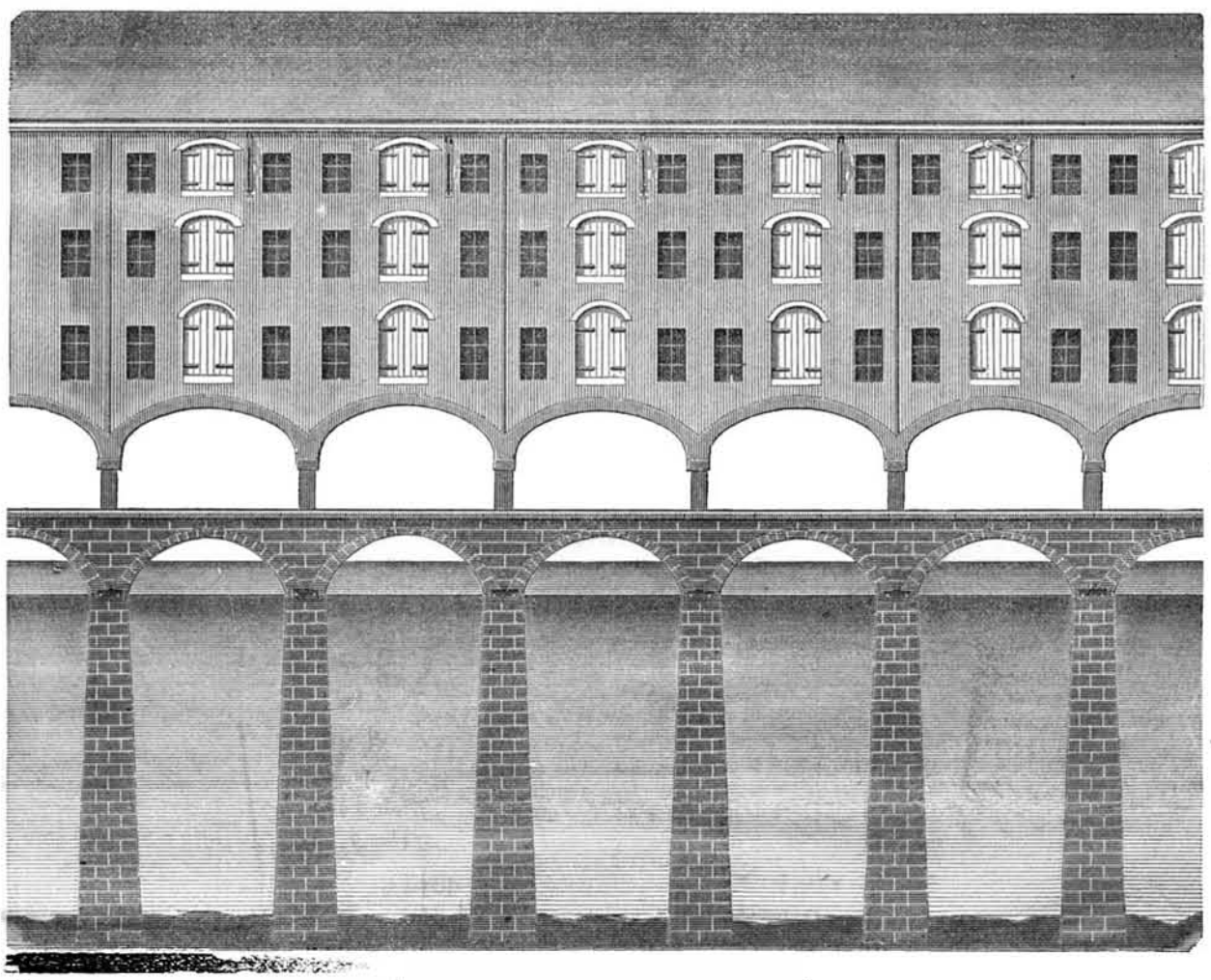
Mississippi Valley Railroad.

A convention, to be composed of delegates from all the States bordering on the Mississippi river, has been called for the purpose ot forming a company to construct a railroad along the Valley of the Mississippi, from the Falls of St. Anthony to the Gulf of Mexico. The convention will assemble at St. Louis on the third Monday of November.

The Illinois Central Railroad, with its branches, is to be six hundred and ninety-nine miles long. It extends from Chicago and Galena to Cairo, at the mouth of the Ohio. The amount of land which has been appropriated by government for the benefit of the road is 2,681,160 acres.

The Mormons are determined to get a footing upon the Pacific. They have selected a site for a new city near San Bernardino, and erected a grist mill. Their wheat crop this year it is expected, will make over thirty-five thousand barrels of superfine flour.

DOCK STORES ON SUBMARINE FOUNDATIONS.



In the first number, of this volume of the Scientific American, the plan of forming submarine foundations by the "Immersive Cofer," invented by Charles Pontez, the owner of Prof. Pott's patent for sinking hollow piles by atmospheric pressure, was illustrated and described. The accompanying engraving forms part of the system, as it is designed to be carried out, and there is no city in the world where the introduction of such an invention would prove of so much benefit, or is so much required, as New York. The figure represents a series of storehouses built upon strong arched piers, the foundations ot which are of solid mason-work, built with the "Immersed Cofer," for a description ot which we refer to the number of the Scientific American spoken of.

For many years it has been proposed to build permanent wharves in New York, but the great cost has prevented the accomplishment of the desirable object. This system offers the means of carrying out the project The wharves now built of a mass of loose stone, could be enclosed in a thick solid wall, and on the permanent base, thus made, substantial warehouses could be erected on iron or granite columns, leaving a clear way on the floor of the wharf, for vehicles, and vessels could directly discharge their cargoes into these warehouses. The revenue derived from this source would pay more than the interest on the cost of these imperishable structures, and would afford a source of revenue to the city.

Every American who has visited Europe by way of Liverpool, has admired the wonderful docks and warehouses of that city. Amid hail and rain, a ship can unload her cargo, and almost roll it from her decks into the storehouses. No city in the world, possessed of such a harbor and such a marine trade (the third greatest sea-port in the world) as New York, is so destitute of conveniences for the shipment and transhipment of goods, and for their protection in wet and stormy weather. We have heard the captains of vessels say, that "the docks of New York were of the worst description, for convenience, &c., and altogether unworthy of such a great sea-port and growing city." This assertion no one, who has travelled over a considerable part of the world, will deny, and every New Yorker both feels and knows it to be true. There are too few public conveniences for our shipping interests in this city; this should be remedied, for, in every sense of the term, the city of New York is indebted for her greatness and wealth, to her ship merchants. After this there can be no excuse for not providing good wharves and public stores on them; the expense of their erection cannot be urged against them, for this plan is both practicable and economical. With our modern improvements and appliances, new wharves and warehouses can be built on this plan of a character inferior to no others in any city in the world. The stores should be of iron, and thus they would be fire-proof—a consideration of the greatest importance. Iron stores could be put up rapidly, and would not cause that confusion along our docks, which brick and stone buildings would. We recommend this improvement to all sea-port cities in our country. We have spoken especially of New York city, because we know the great disadvantages under which her shipping merchants labor, for want of proper accommodations for cargoes, while vessels are loading and unloading at our wharves. On some ot our wharves there are miserable wooden sheds, of which every citizen in New York will feel ashamed after seeing this engraving. We specially recommend this plan to our City Board of Trade.

When we consider that New York City is growing so fast, and her shipping increasing so rapidly, it would be wisdom for those who are selected by our merchants to watch over the shipping interests of our city—and they are the most important—to test this plan at an early date. The extension of our wharfage can only be accomplished by pushing artificial structures into the present water domain which encircles our shores. Let our future encroachments on sea and river be worthy of the wealth, the enterprise, and wisdom of New York; let us have such wharves and public stores as we can have, by the plan here proposed, which will be the means of affording ample public accommodations for merchandise, and save it from being injured by inclement weather during the time of its shipment and unshipment. Much property will also be saved by such wharves and stores, from those depredators, now so common, who live by dock plunder. Gates can be erected to be opened and closed at certain hours, and none but watchmen or those who have pasports be permitted to pass in and out by the watchmen. Some system of this kind, as is well known to our merchants, has now become almost imperative; it is for our merchants to say when the remedy we suggest will be carried out.

Exhibition of Works of Industry at Washington.

The first Exhibition of the Metropolitan Mechanics' Institute will be opened at Washington on the 24th of next February, (1853.) It is to be held in the new and splendid hall of the east wing of the Patent Office, which is 275 feet long and 70 feet wide. The mechanics from all parts of the Union are invited to exhibit their industrial products. All articles deposited for competition must be of American production. A steam engine will be in operation for driving the machinery. Every facility will be afforded to exhibitors. The Corresponding Secretary is Charles F. Stansbury, so well known for his acquaintance with engineering and works of mechanical industry. We hope the Washington Mechanics' Institute will have a good Fair.

The exhibitors will have an opportunity of seeing the wise men assembled in conclave Congressional.

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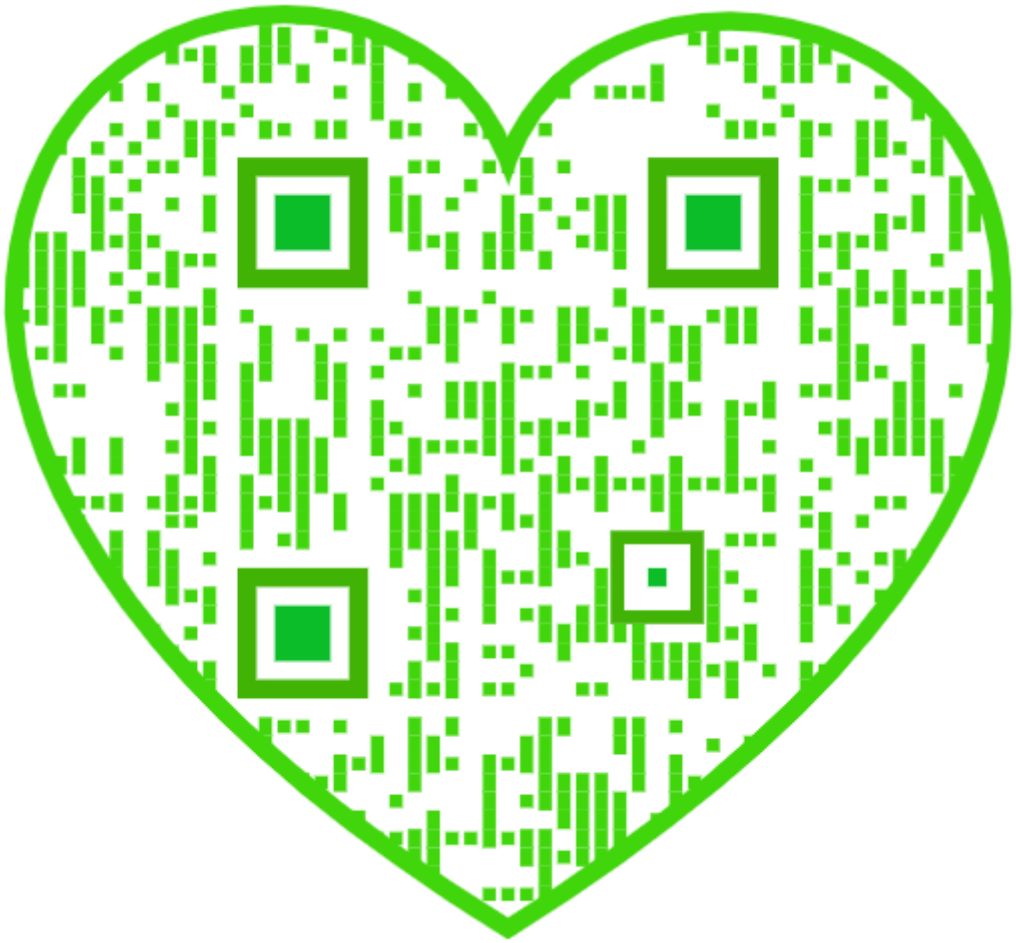

MISCELLANEOUS.

Fair of the American Institute.

(Concluded from page 51)

MANUFACTURES.

Ventilating and Guard Car—J. P. Duffey, Philadelphia.—The inventor intends this car to act not only as a reservoir for air, but also to receive the brunt of a collision, and in case of such an accident to arrest the speed of the train by a self-acting brake. The ventilation apparatus is rather elaborate, and occupies the most of the inside of the car. It consists of four upright pipes with apertures at the under side of the car, to allow the admission of the air, which, in that locality, is more free from smoke than the air of the upper region. These tubes terminate at the top of the car in a parallelogram of other pipes, whence the air is drawn to supply the passenger cars. This complex arrangement is adopted, we presume, to filter the air from dust, and perhaps to warm it in winter, but, from want of explanation, this is only conjectural on our part. The guard arrangement consists of a stout buffer-board which is kept extended from the front of the car by two rows of cylindrical rubber springs. On the spring-board being forced in by a collision, it acts on a stout iron bar which, by a suitable arrangement, forces down on each side a strong plank, which thus acts as a brake on the periphery of the wheel.

Electro-Magnetic Brake—J. C. Symmes, Troy, N. Y.—The power derived from the galvanic battery has been applied, in this instance, to a new use. A couple of the ordinary wooden segments, fixed as used for brakes, are attached by joints, one near each side of the wheel; on the other end of the brake is an iron stud, round which is coiled a copper wire, in the manner now so well known as used for electro-magnets. If a galvanic battery, to which the copper wire is led, be placed near the engineer or other responsible person, on his completing the circuit which is done in a second, the iron stud will become magnetic and be attracted to the tire of the wheel, and thus force the wooden segment down in the ordinary manner.

Colburn's Combination Safety-Brake—This apparatus can be adjusted either by the brakeman, or is self-acting. Its chief utility lies in the fact that it enables the depot-master to set it in action to retard a train when, from any cause, the signal may be unheeded or not given. The brake itself, and its adjusting levers, resemble closely the ordinary arrangement, the chief difference lies in the use of a strong forked lever, which stands in front of the car and projects beyond the roof. This lever moves the brake by being pulled to or from, the two arms or prongs which form the fork being bent at an angle to each other. When it is required to apply the brake, it is only necessary to pull the lever, in which consists the difficulty. This is effected by having a bridge across the track, from either side of which is suspended an iron stop working on hinges or joints, so that it moves upwards to the bridge, but is unyielding to any thing that attempts to force it forwards. On being let down from the bridge it strikes the forked lever, and forcing it to yield, by means of the depression of the latter, the brakes are pressed against the wheels.

Mortising and Boring Machine—B. H. Otis, Binghampton, N. Y.—The above is a machine adapted for all the slotting and drilling operations required in wood-work; the necessary apparatus for boring is quite distinct from that for mortising so that although there are two spindles, &c., the machine is much more simple than would be possible otherwise, and requires no further adjustment for boring after having been used for the other operation. The frame resembles the usual form of a machinist's drilling machine, having two uprights, which, however, are of hard wood. In front are two iron spindles, which slide up and down in guides, and which have each a socket, —one for a chisel and the other for an auger or other boring tool. The table on which the plank rests can be raised or lowered as it slides in a longitudinal groove cut in the framing. The spindles are held up by chains connected to strong springs, one for each spindle, which are at the top of the frame. To perform the operation of slotting, the workman having adjusted the work, by fixing the table and bringing the spindle over the part to be cut, presses his foot on a lever, which causes an iron frame, working on pivots and connected by a rod to the spindle, to be drawn forward. It is thus thrown into contact with a crank motion, which, in each of its revolutions, depresses the frame and consequently the spindle and chisel. As the crank, in its revolution, passes on and ceases its action on the frame, the spring at the top draws the spindle up, and thus a rapid succession of alternating longitudinal movements is maintained. We should mention that the depth of the mortise is regulated by the pressure of the foot. For boring it is only necessary to throw the belt on the fast pulley, when a rotating motion is given to the spindle.

Self-Heating Iron—By Talliferro, Cummings & Bliss, of New York City.—This useful little invention, in principle, resembles the Box-iron, with the exception that no iron-heater is placed inside the outer case, that purpose being supplied by charcoal. It is, in fact, a small stove, having at one end a door to supply fuel, and at the other a chimney to let off any vapor or smoke. A wooden handle is attached in the usual manner. Although apparently cumbrous it is not heavier than the common sad-iron, the underside being, however, of sufficient thickness to give solidity and weight.

Gold-Beating Machine—W. Vine, Hartford, Conn.—This machine is intended to supersede the manual method hitherto pursued for beating gold into thin leaves. We believe that Mr. Vine had a machine of this kind at the World's Fair, in London, where it had a competitor from France. In principle it is very similar to the tilt hammer, only on a smaller scale. A hammer of 10 lbs. weight (although sometimes one of 25 lbs. weight is used) is fixed to a long wooden shaft, which is lifted up in the usual manner. About 800 leaves of gold, each measuring a square inch, are placed in a package with gold-beater's skin between each piece. This mode of packing is, however, similar to the method of the operative gold-beater. The gold leaf is then beaten out to the dimension of five times its original superficies. It is almost needless to add, that the intervening skins, when the package is made, are of the size to which the gold is to be brought. The gold is shifted along the iron surface bed, so as to receive each successive stroke of the hammer in a different part. This is effected by means of an iron rod extending from the driving gear, and moving the package of gold in a suitable manner.

Culindron Piano—Speer & Marx, Aquackanock, N. J.—The novelty of this instrument consists in the form of the sounding board and the consequent arrangement of the strings, &c. In order to obtain a larger surface for sound than would otherwise be possible, the sound board is shaped cylindrically, forming an upright pillar, with the strings keyed on the exterior. There is, accordingly, a great difference in the arrangement from that of the ordinary piano, as the strings, &c., are placed in a vertical instead of a horizontal position. But the chief improvement consists in the sounding-board, which, from its peculiar shape, presents many advantages of tone as well as of larger surface. There is a pedal attachment for *piano* and *forte* in the usual manner, which is connected with thetop of the cylinder.

Euterpean Piano—McDonald, Bros., New York.—The above-named piano is so called to distinguish it from the now well-known Æolian, from which it somewhat differs in its mechanical arrangement. It should be understood that the Euterpean is intended to furnish a flute accompaniment, instead of the organ, and it is, in obtaining this desideratum, that the merit of the invention consists; for this purpose pipes are employed to give the flute sound, with stops projecting from the frame-work, which are drawn in and out according as the flute accompaniment is required or not. The arrangement of the instrument is such that piano and flute can be played together, or either separately. In addition to the pedal attachment, which is common several other pianos, there is an apparatus to be worked by hand for blowing, like that of an organ, fixed to one end, which can be used when required, instead of the pedal movement.

New Compact Gear—Dibben & Bollman, New York.—This a new compact gear for increasing or diminishing speed, and is one of the most curious inventions at the Fair; how far it is practicable, on a large scale, remains to be proved, but it certainly evinces great ingenuity and skill. It consists of an arrangement of cog-wheels, and the main advantage claimed over the system now in use, is the capability which this new plan imparts of varying the speed of shafting, whilst only a pair of geared wheels is used for all the different speeds required. The inventors have three models on exhibition, each showing a different application of the principle: one is applied to a horse-power, another is for increasing the speed of a propeller, and the third is for an application to water wheels. A few words will explain the invention as adapted to the latter use, the motion here, however, is compound, two small wheels being employed, we should presume to reduce the dimensions to a commodious size. On the main shaft is fixed a wheel, which gears into another of the same size, both resembling crown wheels, although the shape of the teeth is somewhat different. Around the rim of the driven wheel is another larger one, of the same description, and in fact it is all one casting; this last-named wheel gears into another fixed one of the same diameter. But now follows the main departure from the old routine: the shaft which carries the driven wheels, instead of being in line and having its further extremity to revolve in a fixed bearing, is thrown at that extremity out of line, and is attached at that end to the face of a wheel at some distance from the centre on which the wheel rotates, in short it is a crank motion with the shaft acting as a connecting rod. The consequence is, as the shaft is forced round by the cog-wheel, a species of rocking motion is given to the crown-wheel on the shaft, so that the teeth are alternately thrown in and out of gear, when the teeth on one side are liberated those on the other are thrown into gear. Such is a general account of the plan, the inventors, according to circumstances, using a universal joint, &c., as may be required, to allow of the peculiar motion. They say, in their statement, that they can vary the speed as many times as the wheel has teeth, without changing the pair of wheels. Another advantage is, that the axis of the driving shaft is in a line with the shafting that is to be driven.

Central-lift Self-Acting Stone Saw—J. T. Bruen, Hastings, N. Y.—Some of our readers may not know that the saws used for cutting marble and stone are merely strips of iron, several of which are fixed in a frame at distances, according to the thickness of the slabs into which the block of stone is to be sawn. A plentiful supply of fine sharp sand and water is let into the slit which is made by the saw, and in reality it is these hard particles of sand which act as the cutting agent. Now, the mode by which the sand is supplied, is of more consequence than may be at first apparent, should it get between the sides of the saw and the stone, the smooth surface of the latter would be considerably impaired to say nothing of the great and useless wear of the saw. To overcome this difficulty the inventor has chosen the central-lift, as the sand and water are thereby better precipitated beneath the saw; and, moreover, the sand being by this method first rolled in one direction, and then rolled back again to the centre, a fresh cutting edge is presented by its particles.

Eye Cups—J. Ball, New York.—This invention consists of a wooden cup just large enough to enclose the eye with an india-rubber ball at the end, the object being to restore the rotundity of the cornea of the eye when the sight has become impaired. In order to effect this purpose, the india-rubber ball is pressed by the hand and thus partially exhausted of the air inside, on releasing the hold, or, rather, diminishing the pressure, the india-rubber, by reason of its natural elasticity, returns to its former shape, and in so doing corrects the defect which it is intended to remedy.

Locomotive Lamps—Alcott & Brothers, Rochester, N. Y.—A pair of these lamps are stationed one on each side of the entrance into the Rotunda, and are conspicuous objects from the brilliancy of the reflectors; we can form but a slight estimate of what this brilliancy must be when they are lighted up, from the appearance that they now present. It must be blinding to any object in front for a very, very long distance. The form is the same as that in general use, namely, a parabola.

Cow-Lifter for Railways—C. Darling, Utica, N. Y.—A large circular metal plate is placed in front of the car, close to the track and is made to revolve horizontally by the axle, the edge is bevelled so that any obstruction—a cow, for example—will slide on to the plate, and, by the centrifugal motion, be thrown to one side.

Paddle Wheel for Steam Vessels.—In this wheel, the paddle-boards or floats are made to slide along the arms of the wheel from the periphery towards the centre so as to remove them from the water when their presence would be an obstacle to the progress of the wheel. We need not describe how this is effected, as every one will understand that it is done by rods working in a suitably curved frame. The idea is good, but how far advisable in practice remains to be proved. The usual objection of rods and joint pins being broken and lost, applies to this paddle as to all others, in which it is sought to vary the position of the floats.

Marbleizing Metal—Silas C. Herring, New York.—Under the above title are exhibited specimens of metal to imitate every description of marble, scagliola, stone, &c., the object being to introduce metal for the more ornamented parts of house-building, such as mantels, columns, &c., and also in the way of furniture, as tops of tables, bureaux, &c. The advantages offered by its use over marble are greater cheapness and durability and likewise its capability of resisting a greater degree of heat, and because neither acids nor oils have any injurious effects upon it. These specimens exhibited are beautifully executed, and so perfet is the imitation that it is only by examining that the difference from marble is known. We have no doubt that this article is destined to supersede the use of marble to a great extent, in decorating the interior of buildings.

CLOSE OF THE FAIR.

The Fair of the American Institute closed on Friday the 29th ult., and has been very successful in a pecuniary sense; the receipts for admission having amounted to about $25,000, it may easily be calculated from this how large a number of visitors attended. The list of premiums was very extensive and comprised a large number of exhibitors; below will be found the names of those to whom the gold medals were given with the descriptions of articles for which the prizes were awarded. The Ray premium was not decided upon, so that we must defer any remarks upon the subject until next week.

Roshore & Wood, N. Y. Gold and Silver Ware.

C. P. Caldwell, N. Y., case of Whips.

F. Skinner & Co., N. Y., Black Cassimere.

Millville Manufacturing Co., Fancy Cassimere.

Evans & Legrave, Blackstone, Mass., Black Satinett.

Ballard Vale Co., Andover, Mass., Silk Warp Flannel.

C. A. Stevens, Ware, Mass, White Flannel.

Dexter Manufacturing Co., Pleasant Valley, Beaver Cloth.

Grenville Co., Grenville, Conn., 2nd best Felt Beaver cloth.

C. L. Harding, Oxford, Mass., Doe-Skin Cassimere.

Mystic Co., Mystic, Mass, Colored Merino.

Rochdale Mills, Rochester, N. Y., Woolen Blankets.

Salisbury Manufacturing Co., Silk Warp Tweed.

Robert Reinne, Lodi, N. Y., Printed Lawns.

A. N. W. Sprague, Providence, R. I., Madder Prints.

New York Mills, Utica, N. Y., Pantaloon Stuffs.

P. Allen & Son, Providence, Prints.

B. Shaw, New York, case Boots, Gaiters, &c.

M. Nichols, Workmanship on Gaiter Boots.

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S. N. Perkins, Auburn, N. Y., Patent Coats.
Troy Carpet Mills, best Carpets.
Scwochkard, Williamsburgh, Castings.
A. Lecompte, Staten Island, Bronze Statues.
Cornelius & Co., Philadelphia, Lamps and Chandeliers.
C. C. Wright, N. Y., superior Dies for Medals.
H. N. Crawford, Philadelphia, Calf-Skins.
J. M. Sanderson, best Truss.
M. J. Hubbard, Rochester, Model of Self-Adjusting, Short-Turning, Carriage-Gearing.
C. L. Boynton, Blank Books.
S. Walker & Sons, Bookbinding.
W. L. Thompson, Binders' Stamps.
Ambler & Avery, Dental Mechanism.
J. Brodie, White Enameled Satin Cloak.
M. Bell, Velvet Cloak.
A. Manfer & Co., Mass., Dress Sword.
Allen & Thurston, Worcester, Mass., Fire Arms.
Hale & Co., Enamelling on Glass.
A. H. Ritchie, N. Y., Engraving on Steel.
A. W. Overbaugh, Engraving on Gold.
A. Phillips, work in Hanging Papers.
S. C. Herring, Enameled Mantels.
T. H. Gillies, Spring Chairs.
Laffin, Brothers, Herkimer, N. Y., Cream Laid Paper.
Steven & Parish, N. Y., Copying Presses.
J. Gurney, Daguerreotypes.
W. & N. Jackson & Sons, Grates.
W. & E. F. Fitch, New Haven, Locks and Bits.
Jas. Prentice, Mathematical Instruments.
Charles Copley, Brooklyn, Gloves.
Thomas Hemingway, Lexington, Ky., bale of Hemp.
Brooklyn Flint Glass Co., Plain and Fancy Glass.
Haughwout & Daily, Painting and Enamelling on Glass.
Elias Cartlidge & Co., Green Point, American Porcelain.
J. H. Butterworth & Co., Dover, N. J., Bank Locks.
D. Culver, Hot Air Furnace.
Hamilton Woolen Co., Printed De Laines.
Jos. P. Pirsson, New York, Double Vacuum Steam Condenser.
Howes & Phillips, Newark, N. J., 25 horse-power Steam Engine.
Wm. Vine, Jr., Hartford, Conn., Gold-beating Machine.
S. T. McDougal, N. Y., Platform Scale, Improved Weights.
Blake & Johnson, Waterbury, Conn., Cast-Steel Geared Rollers.
H. H. Green, N. Y., Type-Casting Machine.
J. W. Cochran, Williamsburgh, Quartz Crusher.
Sloan & Leggatt, N. Y., Regulator for Water in a Steam Boiler.
Joseph Pine, N. Y., Running-gear to Fire Engines.
A. Davis, Dove-tailing Machine.
G. P. Gordon, N. Y., Card Press.
D. Brundred, Son & Co., Paterson, N. J., Cotton Throstle.
A. Kreisher, N. Y., Fire Brick.
J. & W. McAdams, Boston, Paging Machine.
L. Alexander, N. Y., Submarine Boat.
Chas. Wilson, Springfield, Mass., Stone Dressing Machine.
Albert Eames, Stone Polishing Machine.
John Stokell, Jr., best work on an Eight-Day Clock.
Allen, Fowler, & Co., Mass., Self-Cocking Pistols, &c.
J. C. Wolfe, Newark, Top Wagon.
Smith & Sons, East Brooklyn, Wagon without Top.
W. F. Ketchum, Buffalo, N. Y., Mowing and Reaping Machine.
Morratz Suly, New York, second best Casting.
H. N. Dox Livingston, Nelson Co., Virginia excellent specimen of Saxony Wool.
A. B. Allen & Co., Agricultural Implements.
Louget and Griffin, New York, Agricultural Implements.
Pierce & Valentine, 122 Water street, superior safe.
A. C. Powell, Syracuse, N. Y., for a machine or cutting bolts.
O. R. Hames, Ithaca, N. Y., Calendar Clock.
W. Colgate, best Family Soap.

British Association for the Advancement of Science.

(Continued from page 51.)

PATENT PAPER FOR THE PREVENTION OF PIRACY.—S. Bateson read a very important paper on the anastatic process of printing. As many of our readers know but little of this process, it will be instructive and interesting to give a short history of it.

It was invented some eight or nine years ago by Mr. Randolph Appel, a native of Silesia, who went over to England. Owing to various circumstances the anastatic printing languished for several years, until tardy justice was done to its inventor at the Great Exhibition in 1851, when a prize medal was awarded him. Since that time it has been becoming more generally known. The term anastatic means raising up, or a reproducing as it were, and very significantly does the name express the result; for by it any number—thousands upon thousands—of reproductions of any printed documents may be obtained, each of which is a perfect fac-simile of the original, no matter how elaborate the engraving may be, or how intricate the design. The print of which an anastatic copy is required is first moistened with very dilute nitric acid (one part of acid to seven of water.) and then being placed between bibulous paper all superabundance of moisture is removed.—The acid being an aqueous solution will not have attached itself to the ink on the paper, printers' ink being of an oily nature; and if the paper thus prepared be placed on a polished sheet of zinc and subjected to pressure, two results follow:—In the first place the printed portion will leave a set-off or impression on the zinc; and secondly, the nitric acid attached to the non-printed parts of the paper will eat away and corrode the zinc, converting the whole, in fact, into a very shallow stereotype. The original being removed (perfectly uninjured), the whole zinc plate should next be smeared with gum water, which will not stick to the printed or oily part but will attach itself to every other portion of the plate. A charge of printer's ink being now applied, this in its turn only attaches itself to the set-off obtained from the print. The final process consists in pouring over the plate a solution of phosphorous acid which etches or corrodes more deeply the non-printed portion of the zinc, and produces a surface to which printer's ink will not attach. The process is now complete, and from such a prepared zinc plate any number of impressions may be struck off. The uses to which this invention may be applied are various—copies of rare prints may be obtained without the aid of an engraver. Reproductions of books, or of works out of print, may be had without setting up the type, authors may illustrate their own works, and amateur artists may have fac-similes of pen and ink sketches at a very inconsiderable expense. To be in accordance with the facts already mentioned, the anastatic process should only be applicable to the copying of impressions made with printer's ink; any other inks however, even the most fugitive, may be adapted to this operation, and hence, without some safeguard, the dishonest practices to which the anastatic process might be applied would be numerous. Copies of checks and banknotes may be taken so as to defy scrutiny. In point of fact, bankers have been mistaken again and again when examining notes and checks when forged by this process. To prevent forgeries by this process, a paper was invented and patented by Messrs. Glynn & Appel, of London. It consists merely in impregnating or dyeing the pulp of which the paper is made with an insoluble salt of copper. After a series of experiments, the patentees preferred phosphate of copper to any other salt; and for this purpose sulphate of copper and phosphate of soda are successively mixed with the pulp, which of course produce an insoluble salt, the phosphate of copper.—Besides this, a very small portion of a peculiar oily and non-drying soap is introduced, which affords a double protection. Should the forger attempt to submit a note or check printed on the patent paper to the anastatic process, a film of metallic copper separates between the paper and the zinc, not only preventing a set-off, but cements the paper so strongly that the paper must be destroyed—it can only be removed in small pieces.—Thus, the forger is punished by the loss of the original, the public protected, and the banker benefitted, as it is presumed no forger would apply for the value of the note so unlawfully used. Hitherto, elaborate engraving, beauty of design, and execution by skilful hands have been the sources of protection, and under such conditions a forger must either be a skilful engraver or employ some person to engrave for him. This fact has generally led to the detection of forgery; but how justly alarmed bankers will become when they learn that any one who understands what is called chemical, that is to say, lithographic printing, may, with the aid of a zinc plate, a little nitric acid and a press, be able to produce such perfect fac similies of notes and checks as to pass the scrutiny of the most lynx-eyed of their clerks.

To Teachers.

MESSRS. EDITORS—I respectfully suggest that you have been too modest in urging the claims of the Scientific American upon Teachers. Who are more interested in every improvement in science than Teachers? We have to teach science in our schools, and where shall we look for the history of every improvement but in the columns of the Scientific American? If we want the best elementary work on any science, we do not go to the obsolete catalogues of interested booksellers, but to the Scientific American. You will consider that many of your readers are far removed from extensive book establishments; we cannot step into a bookstore at any moment and inquire for the latest and best work on any science. The Scientific American stands at the very well-head of knowledge, bottles the very cream of science, as it rises, and sends it forth as the nourishing food of thousands. And I feel sure that no class of your readers is more interested and benefitted than Teachers. B. W. WHITE.

Bear Spring Seminary, Giles Co., Tenn., '52.

The Aerial Reporter.

We have not received a number of this periodical which is published at Washington—the Metropolis—since its 10th number reached us. Considering the importance of balloons and all flying machines, we are rather surprised that we have not had a visit from the inventor of the Aeroport or Flying ship before this. We expect to see him come sailing along in his balloon to New York City some fine Saturday—in the middle of the week. The last Report that was made by Mr. Porter, informed his friends that he had been occupied in cementing many seams and stopping all the minute pores of his float and in removing two conical transverse partitions, &c. It seems that he was employing a considerable quantity of *beeswax* flexible pipes, and such-like droll things previous to the first flight of his Flying Ship. This was on the 9th of last month, and still the Aeroport has not arrived. Oh what a flying ship it must be. It is now four years since the building of it commenced, and the wax is not dry yet. Prodigious project.

Remarkable feat of an Engine Man.

The following occurrence lately took place on the French Northern Railroad. It is an example of the advantage that sometimes arises from meeting opposition with a bold front:

The passengers upon the Northern Railroad narrowly escaped destruction some days ago. A large cart, laden down by the weight of an enormous block of stone, had become fastened in among the rails, and the efforts of the three horses to disengage it were perfectly unavailing. The whistle of the express train was heard in the distance. The wagoner, determined to save his horses at least, cut the reins and the harness and made off. The engineer saw the obstacle, reversed the steam and gave the signal for the brakes. But the engine, which was a Crampton, refused to obey, and the machinist saw the utter impossibility of stopping it in time, so he put on the steam again, and drove the train with full force upon the terrible obstacle. The wagon was shivered to atoms, and the stone sent flying in splinters for rods in all directions. The train was not thrown off the track, and the passengers were unaware of any shock. They did not hear of the danger they had run till they stopped at the next station. The engine was battered, but its vitality was not decreased. The engineer, whose coolness and decision saved the passengers, is a Pole, and will be the object of some tribute of gratitude from the company.

Machine for Crimpling Iron Bars.

Messrs. Slocum & Sayles, of Lansingburgh, Rennselaer Co., N. Y., have taken measures to secure a patent for improvements in the above-named machine. It should be explained that this is a machine for bending bars of iron into a shape that is often employed, particularly for ornamental fences, house-work, &c., we mean the zig-zag shape. The rolling mill employed for this purpose consists of two under rollers placed side-by-side, and of two upper rollers,—the latter two running in bearings which can slide up and down in the framing, so as to recede from, or advance to, the under rollers. Between these two sets of rollers there slides a bed, which carries the dies intended to impress the desired form on the iron. The patent more particularly applies to the construction of these dies. They are formed in pairs, so that the projections of the upper die fit into the recesses of the lower one. Their shape, in general, is angular, and the upper die is so formed with joints that each angular piece can be forced into its corresponding cavity in the lower die, without the necessity of its fellow projections partaking of the motion. The bar of iron being placed between the dies, which are fixed on the movable table, a chain or cord is attached from the table to the further of the lower rollers, so that the former may be drawn along as the rollers revolve. The upper rollers, which give the pressure, are forced down to their work by weighted levers, hence when the machine is set in motion, the table and dies are drawn between the rollers, and the first jointed projection of the top die is forced into its recess in the lower die, thus giving the iron bar the desired shape. The table continuing to advance, is caught between the second pair of rollers, which hold the bar from shifting whilst the second projection is descending, and in this manner the process goes on until the whole length of the bar is fashioned into the shape required. The inventors do not confine themselves to this sort of die alone, but propose another mode also, in which both top and bottom dies are made flexible.

The Crystal Palace.

The first column of this intended edifice was raised on Saturday the 30th ult., in the presence of Governor Hunt, Mayor Kingsland, Archbishop Hughes, Senator Beekman, and other distinguished individuals. The pillar was raised into its place at 12½ o'clock by a derrick amid the enthusiastic shouts of the spectators and firing of cannon. At the conclusion of the ceremonies, Mr. H. Meggs called for "Three cheers for the Crystal Palace," which was loudly responded to, and immediately afterwards the assemblage separated.

Saut Ship Canal Survey.

Capt. Canfield, of the U. S. Topographical Engineers, and Judge W. A. Burt, are now engaged in the location and survey of the Ship Canal around the Ste. Marie Falls. This survey is made under the authority given to the governor of this State by the act recently passed by Congress, making an appropriation of 750,000 acres of land for the construction of the canal. This is all that can be done until the Legislature meets in January next. This important survey could not have been entrusted to more skilful and competent engineers.

The Japanese Expedition.

Among the articles to be taken out are the following:—A locomotive and ten miles of railroad iron, a telegraphic apparatus with wire sufficient to lead from the Emperor's palace to one of the principal towns, an apparatus for taking daguerreotypes, a magnificent barge for the Emperor, and some fifty boxes of domestic goods of all kinds and descriptions.

New Night Signals.

Swedish steamers are for the future to carry, when underway, a white light at the foretop, a green light on the starboard, and a red light on the larboard side.

When at anchor a light of the ordinary power.

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NEW INVENTIONS.

Door Fastening for Safes, &c.

F. C. Goffin, of New York City, has taken measures to procure a patent for a new method of fastening the doors of safes, &c. The inventor has succeeded in discarding the present system of attaching the lock to the door of safes, &c., which he considers highly objectionable, the door being the most vulnerable part. This is evidenced from the fact that it is generally attacked by burglars, who, if they succeed in forcing the outer case, have easy access to the lock. But, by the present plan, the lock can be attached to the casing of the safe itself. The main idea followed out is to have a continuous bolt moving along the length of all the sides of the door, which, when the lock is fastened, secures every part equally and firmly. For this purpose he proposes to employ iron movable flanges at the top and bottom of the door. About the centre of the outer plate of the door is a disc, having two rods attached to its face by pivots situated near its edge; now, by turning this disc, the rods will be drawn to or from it, and as the ends of the rods are attached to the outer edges of the flanges, it follows of course that, by turning the disc, both flanges will be elevated or depressed. The outer edges of these flanges are made to bear against cleets attached to the top and bottom of the mouth-piece of the door. There is, moreover, another flange attached to that side of the mouth-piece, which is not guarded by the first-named flanges. This latter flange works in pivots attached to the before-mentioned cleets, and when the door is closed, this flange bears against a catch attached to the door. The fourth side or where the hinges are attached is secured by the door having a projection running its whole length, and which catches in a recess of the mouth-piece. Thus, it will be seen that a firm bolt holds the door and secures it against fire or violence. The mode of fixing the flanges and of securing their position admits of variations which will readily suggest themselves.

Improved Pendulum.

E. N. Byram of Sag Harbor, L. I., has taken measures to secure a patent for certain improvements in the hanging and construction of pendulums. The former improvement consists in the employment of the lens-formed weight or bob, in a horizontal position, or more properly speaking, with the rod passing directly through the axis of the lens. The other improvement consists in the combination with a regulating weight applied to the middle of a wooden pendulum rod, of a compensating apparatus, consisting of metal rods of such length, and so applied, as to precisely counteract the expansion or contraction of the suspension spring to which the rod is attached, by their contrary action in raising and lowering the regulating weight. Mr. Byram is one of the most ingenious mechanics in our country, and at the concern of Messrs. Sherry & Byram, are manufactured the best clocks in the world—superior, it is said, to those of the celebrated Dent, of London.

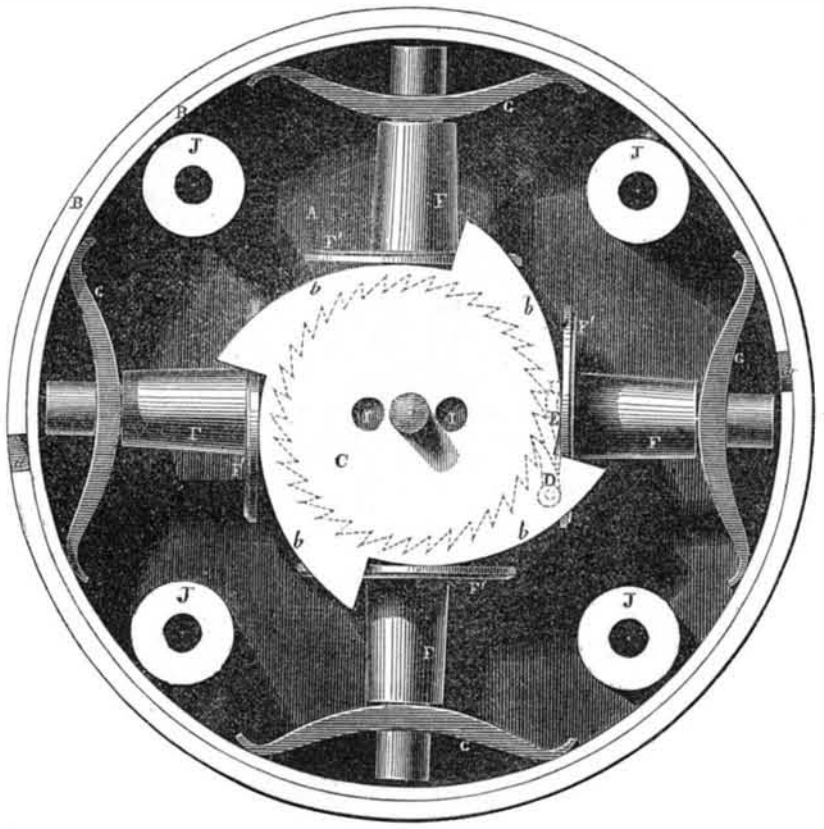
Gold Washer.

T. B. Pyron, Hartsville, Sumner Co., Tenn., has taken measures to secure a patent for an improved Gold Washer. This invention consists of a large upright tube, having two smaller ones branching into it at a considerable inclination, and terminating in a box or receiver. The upper one of the two smaller tubes is intended to convey the earth or ore, and its mouth terminates in a cylinder furnished with a funnel to receive the earth; within this cylinder is placed another, called the agitator, which being made to revolve, triturates the ore. This is effected by means of several series of studs, which project from the outer circumference of the agitator and the inside of the containing cylinder. The water is supplied through the lower tube, and as it has a great inclination, the water flushes the earth tubes, allowing the gold, as being heavier, to fall into the receiver.

A new article of steel pens has been introduced from England; they are simply the old pens covered with gutta percha and pointed with platina.

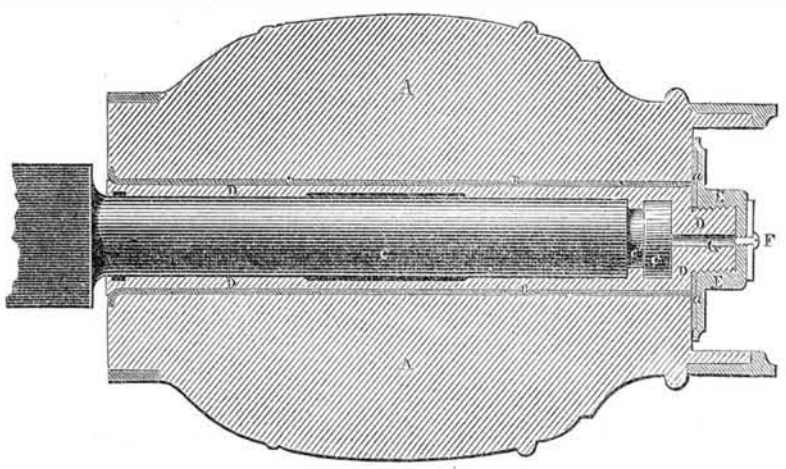
PISTON HEAD PACKING.

The annexed engraving is a horizontal section of a new and improved mode of regulating or adjusting the packing of pistons, so that the packing, when loose within the cylinder, may be made to work steam-tight without removing the cylinder cover. It is the invention of F. I. Palmer, of Greenbush, Rensselaer, Co., N. Y.; who has taken measures to secure a patent for it. The object above specified is attained by means of a cam inside of the piston, which moves as it is turned, and presses against springs that rest against the packing rings, so that the rings are pressed steam-tight around the inner surface of the cylinder. The mode of regulating the packing is performed by means of a key which is inserted through an aperture in the cylinder-head, and turns the cam as may be required, without any necessity of removing the former. The nature of the improvement, however, will be better understood by the following reference to the engraving:



A is the piston-head; B B are two packing metallic rings, one within the circumference of the other (there is another which is removed) so placed as to "break joint," that is the part where the one is cut, is not allowed to coincide with the aperture of the other; these rings are forced outwards by springs, G G G G, which press against the circumference of the inner ring. The springs are acted upon by pins, F F F F, which rest against the curved projections, *b b b b*, of a notched cam, C. This cam is made to move round by a key, and it is held in any position to which it may be turned by a ratchet wheel (seen in dotted lines underneath) which is fixed. On the underside of the notched cam plate, C, there is a pawl, D, attached, which takes into the several teeth of the ratchet wheel, as the cam is moved round, and this holds, as shown, the said cam in any position to which it may be turned. The pawl is kept in contact with the teeth of the ratchet wheel by a spring, E Now, if the cam is turned from left to right, the butt pins, F F F F, will be moved outward, and acting upon the springs, G G G G, the packing rings will expand and thus fit steam-tight against the interior of the cylinder. The mode of turning the cam as mentioned before, is by means of a forked key which fits in the apertures I I. J J J J are nuts for receiving the screws that fasten down the top plate; F' F' F' F', are butt collars belonging to the pins, F F F F, and against which the extending curves of the cam, C, act to force the pins out and press the springs, G G, against the metallic packing rings, B B. The under plate of this piston is screwed down to cover all the interior, and there are two openings in it through which the key spoken of is inserted into the holes, I I, and the projecting pin between these two orifices passes into the hole of the key, so that the cam is easily turned to the desired point, without taking off the cylinder cover. The holes in the cylinder cover are kept tight by screws, bolts, or other means when the engine is at work. This is a good improvement on pistons, and it will be appreciated by engineers. More information may be obtained by letter addressed to Mr. Palmer.

PATENT BOX AND AXLE.

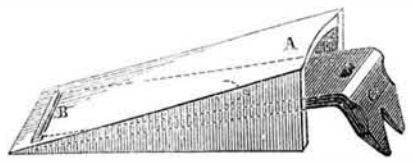


The annexed engraving represents the longitudinal section of an improved Box and Axle, invented by Kingston Goddard, of Philadelphia; and patented in June last.

A is the hub of the wheel; B B is a metal casing fitting tight inside; C C is the axle, with a groove, C', cut in its further end; D D are separate halves of the box for the axle, which, when placed in the hub are joined together by a nut, F, which fits on a screw, each half of the box, D D, having part of the screw cut on its end. F is another screw fitting into the aperture, G, so that the axle can be oiled without taking off the wheel, it being only necessary to take out the screw, F, for the purpose of effecting this object. The advantage obtained by this new improvement, is, that the axle works freely, independent of the box, and that no grease or oil exudes from the hub, as all leakage is prevented from the metal casing, B B, being made to fit tight. The other advantages are, that there can be no running of the wheel off the axle, as the latter is fastened tight in the box by means of the nut, E; to this may be added the ease with which a new box may be substituted when the old one is worn out. Altogether it is a very useful invention, and will be appreciated as such by all who have much travelling on common roads.

More information may be obtained by letter addressed to the patentee as above.

Detonating Door and Window Alarm.



This engraving is a perspective view of a simple and ingenious box, for making an alarm by a detonating ball. It is intended to be placed under a door or window. The box is quite small, being only one-third larger than the figure. A is an open bottomed wedge-shaped metal box, having a short lever jointed to it at B, near one end, the opposite end of the lever being bent to a sharp angle at C. This lever fits to the hollow of the box wedge, which is put in action by inserting the thin end of the wedge beneath the door or line of the window, pressing the pointed end of the lever into the floor. This done, the box is raised to allow of a small detonating ball (torpedo) being dropped in between the lever and box.

It will at once be observed that any person who may tread upon the box, will press the top side of it down upon the lever, C, and compress the detonating ball (seen in dotted lines) so as to explode it and raise an alarm. In an attempt to push a door, or window with French sash open, the upper side of the box will be pressed down upon the detonating ball, and explode it. It also answers the purpose of a wedge, and it can be made, we believe, at no great cost. It is the invention of W. A. Biddell, of London, who recently secured a patent.

Improved Lock.

Richard Ketchum, of Seneca Castle, Ontario Co., N. Y., has taken measures to secure a patent for the following improvement in locks. The bolt is moved to and fro by a spindle, the end of which is bent at a right angle to the other part, or, in fact, forms a species of dog. When the door is locked it is the aim of the inventor to prevent this dog, which is the part of the spindle brought to bear on the bolt, from being turned. This he effects by using a collar with a slot, a tumbler with a recess, and a plate likewise slotted; all these three must, therefore, be adjusted to a certain position before the dog can be extricated. Secret marks or letters are also employed for further preventing or any tampering.

Improved Bit Stock.

Levi N. Leland, of Grafton, Worcester Co., Mass., has taken measures to secure a patent for a new and useful improvement in bit-holders. This new form of bit-stock is intended to prevent the frequent breakage which results from the weakness of the ordinary bit-stock. This is done by forming or casting a collar on the receiving end of the stock, which is also made available in preventing the barrel part of the stock from becoming loose.

Rosewood Trade.

It is said that an attempt is being made to form a company at New Orleans for the purpose of entering into the rosewood trade.—The projector owns a large tract of land near Guatulco, in the State of Oajaca, on the Pacific, about 240 miles from Acapulco, which is covered with splendid rose trees from three to four feet in diameter. It can be delivered for shipment at a cost of $6 per ton, and is worth between $50 and $60 per ton of cubic feet.

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Scientific American

NEW-YORK, NOVEMBER 6, 1852.

Steam Boilers in Cities.

A law for the prevention of accidents arising from steam boiler explosions on vessels propelled by steam, was passed by our last Congress; it contains many excellent provisions, but we have very little hopes of its proving of any benefit to our country, because we do not believe its requirements will be enforced. We have laws which are a credit to those who made them, and perhaps there is no nation on the globe that can boast of their equal in respect to their just requirements, simplicity, and moral bearing, but at the same time, there is no country which allows so many of its laws to be so feebly executed, or so often evaded and broken with impunity. In our own city of New York, we have evidences of the truth of this assertion on every hand.—The rights, the lives, the liberties of the good, quiet, industrious, and moral portion of our citizens are daily in jeopardy, or trampled upon, despised, and wrenched from them. The streets of New York are pent-up volcanoes; huge high pressure steam boilers are in continual blast beneath our pavements, in the cellars of public buildings, &c., and these boilers are of such a character that explosions may be often apprehended. Last week we saw a huge high pressure steam boiler of about eight feet in diameter, and twenty five feet long, taken into the cellar of one of our printing establishments. We could not but feel a sort of shuddering as the huge mass was lowered down into its subterranean abode, where, from carelessness or some other cause, it might suddenly burst its iron sides, and lift up the large building of five stories high from its foundation, and scatter fire, death, and destruction abroad. Two years ago an accident of this kind took place in this city, and the very thought of the deaths and sufferings of so many of our fellow mortals, which were caused by it, makes the cheek still grow white and the breath come fast. Did that terrific explosion, as it should have done, lead our city authorities to adopt and enforce measures for the prevention of like calamities in future? No, it did not; there are hundreds of such boilers in our city; they are in the cellars of almost every establishment that requires steam power to drive machinery. These boilers are all high pressure, no low pressure boilers with condensing engines are employed, except in a few of our large manufacturing and engineering establishments. There should be no high-pressure steam boilers allowed in a public building or factory in our city; they should be as proscriptive, by law, as gunpowder, unless kept in buildings apart by themselves. We know how valuable land is in New York City, but this should be no excuse; it should not be allowed to form a single argument in favor of subterranean bomb-shells, and panting steam volcanoes.

But will anything be done to remedy the evil? We can scarcely expect it, if the past conduct of our citizens is worth anything at all, to assist in forming an opinion. Whoever heard of any person being punished for blowing up and burning, by reckless conduct, scores of our fellow citizens? who can point to a single case? Who talks about the Henry Clay disaster now? and what has been done, or is doing to insure greater safety of life for the future? Nothing; the same terrific evils which in other times have swept hundreds of our fellow mortals into eternity by explosions, are still suffered to exist. How long these dangerous evils will be permitted to stand, we cannot tell; the signs of the time, afford us no ground for hope of their speedy removal, but we must do our duty; having faith in the promise, "he who goeth forth with weeping, bearing precious seed, will return rejoicing, bringing his sheaves with him."

Saw Mills and Saws.

Various plans or processes have been and are employed for tempering or hardening different kinds of steel. The art of tempering has always—and justly so—been considered of a very delicate nature. This is the reason why there are such a variety of modes in practice, and such an incongruity existing among them all. Saws are the most important of all cutting tools. More work is done with them than with any kind of tool. They saw up the forest into boards, planks, joists, and beams for houses, or into ribs and planking for ships. Day and night the sound of the saw, plying at its busy toil, never ceases throughout our land. It is heard far up in our country, making music with the wild waters of St. Anthony's Falls, and its rough bass voice mingles with the sounds of busy life in our city of myriad homes. Blessings on the man who invented the saw. Who was he? It is an old tool, and probably Tubal Cain was its author, but the Greeks have instituted the claim for Talus, the son of Dædalus' sister, and he has a place in their mythology—a place among their gods. This shows how the Greeks honored early inventors. It is said that he was employed to cut through a small piece of wood, and having found the jaw bone of a snake, he employed it, and afterwards made a steel instrument—the saw—from that natural model, for which his master put him to death for spoiling his business, and thus the serpent was the means of doing great good and evil; the world was benefitted by the inventor, and, as if he was the prototype of his race, he benefitted others but was sacrificed himself to the spirit of intolerant self-interest. A painting still preserved among the antiquities of Herculaneum represents two genii at the end of a bench on which is a piece of wood to be sawn, which is secured by clamps. The saw which the genii are about to use has a perfect resemblance to our frame saw.—This shows that the ancient Greeks and Romans were well acquainted with the saw, but none of the aborigines of America knew anything about it, when this continent was discovered, and it does not appear that either the Greeks or Romans knew anything about saw mills, that is, driving saws by water power. This invention is claimed by the Germans for a burgher named Gis Saegemuller, who erected one in 1338. In 1663, a Dutchman erected the first saw mill in England near London, but its introduction was so violently opposed by the sawyers, that he had to abandon his business. It was more than a century after that before another mill was erected. In 1768 a rich timber merchant erected a saw to be driven by a windmill, near Limehouse, below London. This mill was torn down by a mob, but the government made good the loss to the proprietor, and punished several of the rioters. Soon after that a new mill was erected, and the saw in it was suffered to buzz on unmolested.

We do not know when saw mills were introduced into our own country, nor whether it was by the English or Dutch settlers, but we presume the Dutch were the first, as saw mills were long in use in Holland before they were in England. A great number of patents have been granted for improvements in saw mills and sawing. We come very near the mark when we state that 300 patents have been granted for improvements in saw mills and sawing, and fifty for improvements on saws, such as for gumming, sharpening, and setting them. As we stated last week, "the expense of saw sharpening, setting, &c., is the greatest about a saw mill," therefore every improvement in saws whereby they can be made cheaper, rendered more durable, &c., is of immense importance to our country. The tempering of saws, especially long reciprocating, and large circular saws, has always been a very difficult, intricate, and troublesome process. It has been the custom (and it is universal we believe,) to heat saw blades in a bath of hot oil, or molten lead, and then cool them, to make them hard, in cold water or a salt brine. On the 27th of May last year, Mr. Henry Waterman, of Williamsburgh, N. Y., obtained a patent for an improved mode of tempering saws of all descriptions, which has reduced the process to simplicity itself, and the saws which are hardened by it, we have been assured, endure much longer, requiring to be sharpened much seldomer than other saws. The saws are straightened and hardened at Mr. Waterman's factory as follows:—For circular saws there is a heavy solid round anvil, over four feet in diameter, set on the floor. In its centre is a spindle, which passes through the opening in the middle of the saw, and acts as a guide. Above this is a movable circular metal drop, weighing 4 tons 7 cwt. It has a smooth face and is suffered to fall suddenly for about two feet down upon the saw, which is placed upon the anvil. The saw is heated to a low, dull, red color, in an oven, and is placed with tongs upon fingers of angle irons, above the anvil, which fingers retain it there until the hook which holds up the drop is drawn out, when down comes the heavy drop like a mighty avalanche upon the saw, the supporting fingers fly out, and the saw is squeezed between the drop and anvil with a pressure which refines the steel by forcing its expanded molecules closer together, and thus the saw is tempered in a most simple and efficient manner, and done with great rapidity. The drop is allowed to rest upon the saw until it is partially cooled; after this the drop is lifted by a pinion and wheel which works a block and tackle that suspends the lifting hook. The saw is then taken out and requires no more labor to harden it. Some of the saws, although submitted to such a blow and pressure, are still somewhat warped when taken out, but the hammer does all that is required to be done afterwards. Straight saws are treated in the same manner, only a different shaped anvil and drop are employed. This process of tempering is certainly a beautiful and simple one, and no better evidence of its utility can be adduced than to say, that the large saws thus treated are fast superseding others in our saw mills.

Colored Daguerreotypes---The Hillyotype Again.

In the "New York Daily Times" of the 26th ult., Mr. L. L. Hill, of Westkill, Green Co., N. Y., the alleged discoverer of taking daguerreotypes with all the natural colors of flesh and flower, published one of the most unreasonable letters respecting his alledged discovery that has ever appeared before the public. He says, "attempts have been made to supersede me both here and in Europe, and it would appear that there are those among my own countrymen that would betray the honors that grow upon their own mountains, and deliver them into the hands of *La Belle France*." The meaning of this flowery burst is explained in the following sentence:—"It is well known that shortly after my announcement was made, M. Niepce, of France, made a similar statement, and that, too, because of this same publication abroad."

These remarks are unjust and unworthy of an American inventor—if Mr. Hill is one.—None of his countrymen have ever thrown any aspersions upon his character or efforts, and the insinuation about betraying the honors that grow on our mountains, and about Niepce trying to steal his honors are merely groundless assertions. To obtain colored daguerreotypes has always been a desideratum, and long before Mr. Hill was a daguerrean artist,—we presume so—in 1840 a paper was published in the Philosophical Magazine on this very subject, and Daguerre himself, before that, had sometimes obtained colored pictures painted by the sun. Colored daguerreotypes are not new things, but there has always been a difficulty about obtaining the colors and rendering them permanent. Many artists have for years been in pursuit of making the grand discovery, and it is reasonable to suppose that M. Niepce, who has grown up with the art, had made experiments long before Mr. Hill, and without any knowledge of his efforts, or that such an artist was living. In the Daguerrean Journal, published in this city, it was stated that Mr. Hill's pictures would be exhibited in New York City, in September 1851; at that time and up to the present, no hint was given by Mr. Hill how his process was conducted, or a word said about the material he used. His pictures were not exhibited, but some months before that, M. Niepce had taken colored daguerreotypes, and had exhibited them; and in the very first number of Vol. 7, (last volume) Scientific American, we published the process—being the first one in the country that did so—of M. Niepce, for taking these pictures. This process will be found on page 3, said volume. M. Niepce does not appear to be a braggadocio; he made certain experiments in the art, and like a lover of science, simple and childlike, he published, without guile, the whole processes by which he obtained the said results. Instead of becoming prejudiced against this French artist, he rises higher in our estimation by the sinister expressions contained in Mr. Hill's letter. The process of Mr. Hill may be entirely different and produce far more perfect pictures, but he has certainly suffered no one to rob him of any honor, since he has kept his discovery all to himself. This he has a perfect right to do, and it may be for his benefit to act thus, but he should not, as a man and professed christian, breathe a foul breath upon those who have done him no evil. We will rejoice, and so will all his countrymen rejoice, if he has made the important discovery he professes to have made; we will be glad when the evidence is adduced, to be able to say, "an American artist has done thus and so, to benefit art and ennoble his country." In the meantime let us say that the published descriptions of Niepce's process have been made the subjects of experiments here as will be found on page 46, this Vol., Sci. Am. Mr. Hill publishes a great number of certificates (one from Prof. Morse) all written in very flowery language, speaking of the reality of his discovery and the beauty of his pictures. None of these certificates are satisfactory, from the fact that not one of them makes the statement of knowing anything about the process, or of having seen it gone through with from beginning to end. The process which Niepce has published to the world is his own discovery, he is the inventor; if Mr. Hill's is different he is entitled to it; all he has discovered that is new and and useful, happy will we be to defend, and speak well of his title and right to the same.

The Yacht America.

This famous yacht has tried her powers with a new yacht from Sweden, named the Swerige, which was built at Stockholm expressly to run with her. The model of this new yacht is very fine, and many of the English papers asserted that there was no doubt of her beating the America; but Columbia's handiwork beat that of Switzerland by full 20 minutes. Lord Blaquiere, the owner of the America, has published a challenge in the London Times for £1,000, to run the America against the yachts of all other nations—America excepted. He wishes to sail with a nine knot breeze, and over such a course as will test the sailing powers of her opponents under all points. He says that he has allowed the America to be measured, and drawings to be taken of her dimensions, form, &c., so that all might have an opportunity to improve upon her model. He certainly expected that challenges would have poured in upon him, but there was not one who dared to face the Yankee craft. He accounts for this upon the principle that "discretion is the better part of valor." He says, "he felt desirous that the effect of the many imitations made of her should be ascertained in some decisive manner to test the American and English modes of building craft for fast sailing and other essential qualities." He wishes, it seems, that England should learn something from America; he is a spirited and candid nobleman, and is mortified, somewhat, at the want of spirit or skill or enterprise in his countrymen. His challenge has been accepted by two yachts for £500. One is the Volante, the other an iron yacht named the Disowned. The Niagara Mail should copy the challenge of Lord Blaquiere from the "Times."

Sentences of Enginemen.

Two enginemen of engines belonging to coal pits, were recently tried in Glasgow, Scotland, for culpably losing command of their engines, by which one man was killed and two wounded, by falling down the pit in the bucket, in one instance, and in the other by one man being killed from the bucket and rope falling upon him. They were found guilty, and each sentenced to one year's imprisonment by Lord Cockburn. The names of the enginemen were R. Mowatt, of New Monklands, and Thos. Morton, of Hamilton Farm, Rutherglen. They were both tried as criminals.

Coal has been discovered in large quantities at Puget's Sound, Oregon. This is a grand discovery, and will be the means of greatly advancing the commercial interests of Oregon.

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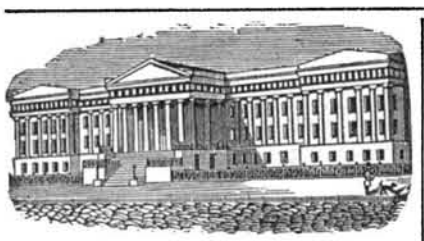

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 26, 1852.

MODE OF FORMING CRUCIBLES AND OTHER ARTICLES OF EARTHEN WARE—By John Akrill, of Williamsburgh. N. Y.: I do not limit myself to rotating the mould, as the cutter and burnishers may be rotated; neither do I limit myself to any particular character of earthy or plastic material, of which the crucible is to be formed.

I claim the cutters or the stock, in combination with the mould, to either or both of which a rotary motion is given, so as to remove the surplus material and shape the crucible, as described,

BOOT CRIMPS—By Luman Barrett, of Gainesville, N. Y.: I do not claim the form of the brake or of the clamps, but what I claim is arranging a spring lever, upon the back of the crimping lever, substantially in the manner and for the purpose set forth.

BITT OR DRILL STOCK—By D. A. Chamberlain, of Boston, Mass.: I claim the improvement of combining with the bell crank and handle of the bitt stock, the rotary bitt holder or shaft, the shaft, the pulleys, and endless band (or two gears as stated) and the pulleys and band or gears, substantially as described, and for the purpose of accelerating the rotary motion of the drill, beyond that of the bell crank, when the instrument is used as stated.

GILDING DAGUERREOTYPES—By Chas. Lhomdieu, of Charleston, S. C.: So far as I can ascertain, I am the first to succeed, in a practicable degree, in gilding daguerreotype plates with cyanide solutions, and the first to have gilded those plates at all with cyanide solutions and a single circle of zinc.

I therefore claim my mode of gilding daguerreotype plates, substantially as described, that is to say, by the employment of the electric current and of hot solutions of the cyanides of gold, previously boiled; and I claim the kind of zinc circle or tray designated.

MACHINE FOR MAKING BAGS OF PAPER—By F. Wolle, of Bethlehem, Pa.: I claim, first, giving the proper form to the piece of paper or material from which the bag is to be made, by means of the shears, which cut on the edges of or on edges attached to the stationary table, or inclined plane, from that part which is toform one side of the bag, so as to leave a lapping piece on the part which is to form the other side of the bag, as set forth.

Second, the pasters, in combination substantially as described, with the feeders, which revolve or pass through the paste and supply them with a proper quantity for pasting each lap.

Third, the combination of the creasers and the lappers, with the intermittingly moving feed rollers, and aprons, in the manner substantially as described, the said creasers and lappers being brought successively into operation on the bags, during the intermissions in the motion of the feed rollers, as set forth.

MACHINERY FOR COMBING WOOL—By S. C. Lister & Geo. E. Donisthorpe, York Co., England. Patented in England March 20, 1850: We claim the combination of the plate, the endless belt, and the rotary spring bar or bars, or equivalents therefor, operating as described, by which we draw the fibre from the gill combs, and carry them forwards to the revolving brush, the whole constructed and made to be operated substantially as specified.

And we also claim the peculiar manner in which the revolving brush that takes the wool from the nipping apparatus, aud conveys it to and lays it upon a circular band or belt of upright teeth, is constructed and operated, the same consisting in making the said brush in sections, and combining therewith mechanism, by which not only a range of these sections can be thrown into a straight line with each other, but another and opposite range can be thrown into a curved or bent line, as described, the said mechanism for effecting the movements of the sections of the ranges, being as explained.

WATCH KEYS—By C. E Jacot, of New York City: I claim the key retained in a countersink in the back plate of the watch, by a spring or similar means, as set forth.

HOT-AIR FURNACES—By A. M. Rice, of Boston, Mass., (assignor to himself and S. H. Lombard): I claim the improved mode of making and supporting the grate, viz., by the combination of a single journal, a socket-piece and a crank key shaft, as applied to the furnace and grate, and made to operate substantially as specified.

I also claim the peculiar combination and arrangement of the horizontal flues, the vertical flues, and the flue space surrounding the chamber of combustion, the whole being essentially as specified.

COOKING STOVES—By Hosea H. Huntley (assignor to D. T. Woodrow), of Cincinnati, O.: I claim giving the arched fire-plate great elevation above the level of the oven top, on which its upper end rests, and giving great capacity, thereby, to the air chamber formed by the arched fire plate and the oven plates, the under side of the arched fire plate being furnished with ribs which divide this air chamber into flues transverse the stove, so that the full force of the fire draught is thrown upon the boiler openings, and from the top plate of the oven, thereby protecting it from a surcharge of heat, and so that in concert with the flues around the ovens, as described, the air must pass from the openings in the side plates to the centre, and thence back to the sides of the stove to the flues leading to the front of the stove. for the purpose of being thrown, very thoroughly heated and in great quantity, around the front oven, and when the damper is opened around both ovens, it being distinctly understood that I do not claim a fire plate in itself, nor ribs for guiding air along a fire plate, in themselves, but only my mode of pitching the arch of the fire plate, and arranging the air-chamber, in combination with the flues and damper, as described, so as to produce the afore-mentioned effect.

HOT-AIR FURNACES—By Apollos Richmond, of Providence, R. I (assignor to A. C. Barstow & Co.) I claim a spiral radiator, constructed substantially as described, whether the pipe be of a round, square, or oval form in section, or the coils be round, square, or other shape.

LOCKS—By F. C. Goffin, of New York City: I o not claim the tumbler or the lever, as they are employed in many locks.

But I claim the employment or use of a guard constructed, arranged and operating in the manner described, whereby the lock is prevented from being picked, by obtaining a pressure upon the bolt, as set forth.

PLOWS—By Albert Gardner, of Cincinnati, Ohio, for himself and as administrator of the estate of W. L. Hunter, deceased: I claim, in the construction of the described plow, bolting the standard, mould-board, landside and share, to the block, or its equivalent, instead of bolting or fastening the parts to each other, as has been practiced heretofore, which block may be connected to the beam by a bolt, or otherwise, as described.

DESIGNS.

COOKING STOVE—By James Wager, Volney Richmond & Harvey Smith, of Troy, N. Y.

CAST-IRON CRADLE—By P. M. Hutton, of Troy, N. Y.

Extension of a Patent.

On the petition of Cadwallader Evans, of Pittsburgh, Pa., praying for the extension of a patent granted to him on the 15th of April, 1839, for an improvement in steam-boilers, for seven years from the expiration of said patent, which takes place on the fifteenth day of April, 1853.

It is ordered that the said petition be heard at the Patent Office on Monday the 17th of January, 1853, at 12 o'clock M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOS. EWBANK, Com. of Patents.

Washington, August 12, 1852.

Attic Silver Mine at Laurium.

The veins of silver were situated in a range of pine covered hills of no considerable height, affording quarries of good marble, in contact with which substance the silver was mostly found. These mines were probably opened at a very early period, but the precise date does not appear. The ore, "or silver earth," as the Greeks called it, was extremely hard and probably very pure and rich in the yield of metal, as the Greeks, from their defective knowledge of chemical processes, could not extract the silver with profit when united with large proportions of other metals. Contrary to common experience, the ore appears to have assumed the form of layers rather than of veins.

The mines were worked, either by perpendicular shafts, or by tunnelling the side of the hill. Pillars of the ore, were of course left, or the superincumbent mass was supported by props of timber, which was largely imported for the purpose. The noxious vapors exhaling from the mines were carried off by shafts of ventilation. The ore was removed partly by simple machines, partly by unassisted labor. On reaching the mouth of the mine they were broken small with iron pestles in stone mortars. These pieces were then ground down smaller, washed, strained through sieves, and sorted into qualities of different richness.

In the silver ore of Laurium lead was largely present, and according to Pliny, the ore was first melted down to the substance called "Stannum," a union of lead with silver.—This was taken to the refining oven, where the silver was separated by heat, and the lead remained half glazed in the form of litharge, which in its turn was reduced. But the ancients were also familiar with the use of quicksilver, in the extraction of other metals, and the moderns have only a claim to rediscovery in this respect. The bellows and charcoal were employed to produce the extreme heat required in refining processes.

Various substances are mentioned as the products of these ancient metallic operations; the flower of gold and copper; the foam of silver, with some others, all of which were used in medicine. In the mines of Laurium copper, cinnibar, and sil, a lightish yellow earth much used by painters, and containing iron were also found.

Walnuts a Family Medicine.

The New England Cultivator presents the following receipt for making a useful medicine from walnuts.

Get the green walnuts fit for pickling, put them in a stone jar filled up with sugar, in the proportion of half a pound to a score of walnuts; place the jar in a saucepan of boiling water, for about three hours, taking care that the water does not get in, and keep it simmering during the operation. The sugar, when dissolved, should cover the walnuts, and if it does not, add more, cover it close, and in six months, it will be fit for use, the older it gets the better it is. One walnut is a dose for a child six years of age, as a purgative, and it has this great advantage over drugs, that while it is an excellent medicine, it is at the same time very pleasant to the palate, and will be esteemed by the young folks as a treat.

Guano on the Lobos Islands.---Its Quantity and Worth.

According to a communication just sent in to "The London Times," the Lobos Islands have a value attached to them, in comparison with which the riches of California are of small account. In his opinion the quantity of guano on the three Lobos Islands amounts to two hundred and fifty millions of tons!

To exhaust this pile of undeveloped food, taking one million of tons a year, would take two hundred and fifty years, and to transport which would employ for two hundred and fifty years, one thousand ships of a thousand tons capacity each. The value of this vast amount of manure treasure at two cents per pound (which is below the mark), will amount to $10,000,000,000. Ten billions of dollars, what a bank that would make, and here it is all founded on three small islands by the fowls of the sea. How many years did it take for those fowls to deposit such an abundance of matter for the enrichment of the barren fields of England and the United States? On every hand there are evidences of the world being much older externally than men have been accustomed to hold it, or that men have had any authority for so holding it by revelation.

Lake Superior Iron.

On the Eastern shore of Lake Superior, there is an iron ore said to be nearly as pure as pig iron. The following is a table of the strength in lbs. per inch of different kinds of iron as tested by Major Wade.

Iron from Salisbury, Conn.	58,000
Iron from Sweden	58,184
Iron from Centre Co., Pa.	58,400
Iron from Lancaster Co., Pa.	58,661
Iron from McIntyre, Essex Co., N. Y.	58,912
Iron from England (cable bolt, E. V.)	59,105
Iron from Russia	76,069
Iron from Jackson Mountain, Lake Superior, as determined by Maj. Wade	89,582

It is perfectly possible to make iron of even superior strength to this out of the New York and Connecticut ores, but at what cost, this is the question? It is not possible to tell the quality of an ore by merely testing the iron made from it; we want to know how that iron was made. Steel is stronger than iron, yet it can be made out of iron from any good ores.

How to Use a Coal Stove.

The fire should not be permitted to die during the winter, by keeping the fire up an immensity of trouble is saved, and it is also cheaper. The reason is this: the coal burns out during the long wintry nights, because the door of the stove is shut—whereas, if the door is left open, this will not be the case.—Less coal is therefore consumed. There is no danger of leaving the door open, as the draft is always strong enough to carry the sparks up the pipe or chimney. If any one sleeps in the room, the upper sash of the window should be lowered two or three inches, even in the coldest weather. To keep the fire in, shake down the ashes on retiring, fill up the stove with coal, and leave the door open if you wish to save yourself a deal of trouble in the morning, and at the same time economize coal.

A new law upon patents has appeared at Vienna. No patent will be granted except to the inventor himself; and the inventor, if a foreigner, must previously have taken out a patent in his own country. Otherwise, all foreign inventions may be freely imitated in Austria.

Daguerreotypes without Mercury.

M. Natterer, of Vienna, has discovered a process for obtaining proofs on iodized plates with the chloride of sulphur, without the use of mercury. A plate of silver is iodized in the usual manner, and then placed on the top of a vessel 6 or 8 inches high, having at the bottom, in a small cup, a few drops of chloride of sulphur; it should remain exposed to the action of the vapor until the sombre yellow color is changed to a red, after which it is brought to a focus in the camera, where it is left for a time, depending upon the luminous strength of the focus of the objective. (With the objectives of Petzval-Voigtlander, not less than ten seconds and not more than two minutes.) The plate is then taken out and examined in the camera by the light of a candle. It often occurs that no trace of the image is as yet perceptible, but if the plate is heated by placing over a spirit lamp the unprepared side, or if left for some time in the dark, or, lastly, if exposed only for a few seconds to a weak dimmed light, the positive picture then appears with all its shades. Of these three modes of bringing out the image, the second is superior to the others.

Instantaneous Pictures.

Instantaneous portraits can now be taken on collodion by a very ingenious French invention. The person whose portrait is to be taken is placed at some distance off, in front of the lens, and the operator, while conversing with him, pulls a trigger. By so doing a newly invented cap (*obturateur*) turns on its own axis, and in its rotary movement allows the light and the image of the sitter to pass through a hole twice the diameter of the lens. The portrait is obtained in the fraction of a second, and for quickness can only be compared to electricity. It is but justice to the inventor of the collodion (M. Bertsch) to state that the rapidity is owing to its extreme sensitiveness, which rendered it necessary to use the above instrument. By the ordinary method the collodion would be spoiled by the light, however skillful the manipulator, before the portrait could be taken.

Ironton, a Thrifty Place.

We have received a letter from R. M. Stimson, Editor of the "Register," Ironton, Ohio, stating, that the said village is an iron manufacturing town, only three years old, and yet it contains, by enumeration, at the present moment, a population of 2,003 inhabitants. No less than 10,000,000 bricks have already been laid in dwelling and business edifices. A railroad has been built for 13 miles into the furnace region, and things appear to be in an active and progressive state. Bye-and-by there will be iron houses built in Ironton, and then it will be fully entitled to the name, with an exclamation mark attached to it.

Eating Grapes.

This valuable and delicious fruit is now in season, and remarkably fine both in size and quality. One of the most scientific and popular cultivators, in answer to a question as to the proper method of eating them, states that it would be well to observe the following rules, namely; when in health to swallow only the pulp; when the bowels are costive, and you wish to relax them, swallow the seeds with the pulp, ejecting the skins.—When you wish to check a too relaxed state of the bowels, swallow the pulp with the skins, ejecting the seeds. Thus may the grape be used as a medicine, while, at the same time, it serves as a luxury, unsurpassed by any other cultivated fruit. A man or woman may eat from two to four pounds of ripe grapes per day with benefit. It is well to take them with, or immediately after, your regular meals.

Death from Perpetual Motion.

A French watchmaker named Vital Moineau, residing in Paris, recently died of a fit of apoplexy, caused by excessive joy, in having finished a perpetual-motion machine, on which he had been engaged for three years. When it was completed he exclaimed, "I can now die content, my task is terminated." Poor man, had he been better acquainted with mechanical philosophy, he never would have wasted so much time and labor on such an impracticable invention.

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TO CORRESPONDENTS.

G. F. J. C., of N. J.—Be pleased to give dates and authorities in making a correction; one man's statement is just as good as another's. We are aware of what is claimed by Dr. Jackson & Morton. You are perhaps also aware that their claims are disputed. Give us the date of Dumas' discovery, &c., when you again write.

G. W. T., of Mass.- We refer you to the engravings of water wheels, which were published in Vols. 6 and 7 of our paper. The owners of these wheels say, they do as much duty as over-shot or breast wheels; Parker's, Vandewater's, and Whitelaw & Stirratt's, made at Cold Spring, N. Y., are good wheels. The question you ask about the stationary engine, we answer by saying that you cannot make a ten horse engine, into a 20 horse engine, by merely doubling the quantity of fuel. We are in want of sufficient good data ourselves to give you a precise answer.

H. D., of N. Y.—We are unable to give you the required information about the ivory black.

G. L. F. B., of Me.—Your suggestions in regard to railroad car brakes are believed not to be new. The same plan has been used in this city on omnibuses. It would not be sufficiently effective. Again, companies do not wish to dispense with brakemen, as they are required to assist about the train, throwing wood and baggage; steel is better to face the wooden segment than india rubber.

H. M. N., of Me.—There is an English work on the Blowpipe, by Prof. Muspratt, of Liverpool; you will find it fully illustrated and described in the Encyclopedia of Chemistry, published by Henry C. Baird, Philadelphia, price $5.

J. K., of Ohio—We do not know of any machine for hulling flax. The passing of the flax between fluted rollers is a good method. We have often been spoken to about flax machinery; it appears to us that some good improvements have yet to be made.

L. S. G., of Tenn.—We are not in possession of the definite information you require about the Maryland Charcoal Kilns; we do not know the cost of making the charcoal. We have only been told that the kilns operate well, and we cannot see how it can be otherwise if they are well made.

R. M. S., of Ohio—Accept our cordial thanks for your favor of the 20th ult. We appreciate it from an Editorial Brother.

J. W., of Ohio—Among the largest pocket-book makers in this city are Washburn, King & Co., Geo. R. Cholwell, Levi Chapman, and Bender & Friedlieb. You had better send us one of yours, that we may judge of its novelty.

G. D., of N. Y.—We have heard nothing from your case since the acknowledgment of the papers. We hope the case will come up soon.

A. W. L., of Conn.—There is no instance on record of chalk having been found in North America.

A. M., of Texas—Pumps for draining mines are generally worked by steam engines, horse or water power can be likewise used, but not with the same effect.

R. Y. P., of Me —Yes, a fire-engine from Canada was exhibited at the World's Fair, but was surpassed by one from France,—the latter doing as much work with eight men as the Canadian with forty.

A. R., of S. C.—You ask us what is the most modern description of pump. The newest contrivance is one on the centrifugal principle, and is highly spoken of.

L. W. N., of Ga.—No, you cannot take out a patent; there is nothing new about your invention.

A. M. R., of Mass.—Phosphate of lime is found in large quantities in New Jersey.

L. S. T., of S. C.—You are quite right, it is a very poor affair altogether.

A. R., of Mo.—Crampton's locomotive is fast becoming the favorite on the English and French Railroads.

R. B. N., of La.—Daguerreotype plates are made in this country, but they are inferior to those imported from France. This difference is caused from our want of the requisite machinery for welding the two metals together.

A. W. L., of Mass.—Researches into the formation of the Mississippi Delta, &c., have been lately undertaken by officers of the U. S. Survey, but the result, we believe, has not yet been published.

B. N. W., of N. J.—The American Society for the Advancement of Science did not meet this year; Cleveland was the appointed place, but the Society were prevented from assembling by the appearance of the cholera in that city.

J. T., of Ind.—In our last volume we illustrated a great number of boilers and furnaces, and there is such a near resemblance between yours and some of them, that we do not see on what point we could institute a good patent claim.

J. H., of Ohio—It is very difficult to decide in regard to the practical operation of your method of ventilating without a test on a working scale. We think the plan not altogether new.

J. S, of Cincinnati—Yours of the 28th ult., covering $25, came duly to hand. We shall ship you a lathe as soon as possible.

A. L. B., of Ala.—You may use, for your purpose, either Bunsen's or Daniell's Battery.

W. F., of N Y.—There was a report published that "strychnine" was used in the operation of making a peculiar ale in England, called "Allsop's Pale Ale." Liebig was said to have analyzed some and found it so, but this the celebrated chemist has most strongly denied.

A. R. T., of Miss —Ammonia is much dearer than it used to be, but why, we cannot say.

R. M., of Ohio—We cannot give an opinion as to the practicability, many things are possible and yet not probable.

Money received on account of Patent Office business for the week ending Saturday, Oct. 30:—

W. G. H., of Pa., $47; S. W., of Ill., $20; D. & L. C., of Ct., $30; T. S., of Ct., $30; K. & N., of Pa., $20. H. B. G., of N. H., $30; C. & R., of N. Y., $30; A. M., of Pa., $20; W. P., of Md., $37; L. B. F., of N. Y., $30; N. C., of Conn., $25; J. H. B., of N. J., $50; A. E. B., of N. Y., $31; E. L. G., of N. J., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 30:

S. W., of Ill; E. L. G., of N. J.; A. T., of N. Y.; J. T., of N. Y.; J. R., of N. Y.; K. & N., of Pa.; A. M., of Pa; F. & B., of N. Y.; A. E. B., of N. Y.; N. C., of Ct.; J. H. B., of N. J.; E. Van C., of Pa.

A Chapter of Suggestions, &c.

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PATENTEES—Remember we are always willing to execute and publish engravings of your inventions, provided they are on interesting subjects, and have never appeared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permitted to have the engraving executed to suit our own columns in size and style. Barely the expense of the engraving is charged by us, and the wood-cuts may be claimed by the inventor, and subsequently used to advantage in other journals.

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IRON FOUNDERS MATERIALS—viz.: American hard white and grey Pig Iron; No. 1 Scotch Pig Iron; Iron and Brass Moulding Sand; Fire Sand and Fire Clay; Core Sand and Flour. English and Scotch patent Fire Bricks—plain, arch, and circular, for cupolas. Pulverized Soapstone and Black Lead. Sea Coal, Anthracite and Charcoal Foundry Facings of approved quality, always on hand and for sale by G. O ROBERTSON, office 135 Water street, (corner of Pine), N. Y. 3 6*

BAILEY'S SELF-CENTERING LATHE—The best in America for Chair Stuff, Wagon Thills, Rake, Fork, Hoe, and Broom Handles. Persons wishing this Lathe, warranted to do twice the work of any other lathe, by applying to L. A. SPALDING, Lockport, N. Y., can be supplied. The following certificate of Birge & Brother, extensive chair manufacturers, at Troy, N. Y., is to the point:—

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IMPORTANT TO SOAP MAKERS—Letters Patent of the United States having been issued to Wm. McCord on the 27th of July, for a valuable improvement in Soap, all manufacturers, venders, and users are hereby cautioned against the use of Kaolin, or other equivalent aluminous minerals combined with ammonia, as they will, by so doing, infringe this patent, and subject themselves to prosecution. All the necessary fixtures for making 2000 lbs. per day, will cost not to exceed $75; two persons only required to attend the manufacture. Rights to manufacture this the most valuable soap, are offered for sale on reasonable terms. Apply to WM. McCORD, 141 Sullivan st., N. Y. 47tf

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LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

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NEW HAVEN MANUFACTURING COMPANY, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H. Man'g Co. 45tf

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SCIENTIFIC MUSEUM.

Ancient Mines on Lake Superior.

The Lake Superior region of America is richer than any other region of the world in copper. It is not many years ago since these rich seams of copper were discovered, and with our knowledge of the Indian's character, and our entire ignorance of the history of the past, in respect to the inhabitants of Northern America, it was supposed that our modern discoveries of these minerals were the first ever made by mortal men. The huge mounds scattered over our country have left traces behind them of a race long since passed away, but in a more striking manner have evidences of that race been recently brought to light in the discovery of ancient mines, tools, &c., in the Lake Superior region. In 1848 the first of these old mines was discovered, and in it was found a mass of pure copper, weighing six tons, which had been raised by ancient wedges, and rolled along the gallery. These ancient mines extended over a tract of country 100 miles long, running from N. E. to S. W. A great number of ancient tools have been found, they all consist of hard stone, with single and double grooves for the reception of handles, like those now employed by blacksmiths for holding their wedges. The marks of old fires extended everywhere, showing that they employed heat in their mining operations—by heating the rock first, then cooling it quickly with water to soften it—the plan for softening copper. When did those ancient miners work these mines, and who were they? Trees of hundreds of years' standing, extend their roots on the surface of a soil, which has required ages to accumulate, over some of their deepest works. We have no evidence of who those miners were, except by the tools which have been left behind them; but at one time they must have been numerous, for quite a number of their old excavations have been opened up. Is it possible that they remain? It is possible; savage man in all countries is a wreck of former civilization. The descendants of the Greeks and Romans are not like their forefathers; we know them to be wrecks of a former civilization. Tribes and men, separated from communication and contact with others of their species, soon degenerate, and dwindle into the savage state. It is therefore quite possible that the old copper miners of the Lake Superior region were the forefathers of the present race of Indians.

Folliculitis, Commonly called "Clergyman's Sore Throat."

This disease consists simply in a chronic inflammation of the mucuous follicles or glands connected with the mucuous membrane which lines the pharynx, larynx, trachea, &c. The office of these little glands is to secrete a fluid to lubricate the air-passages. When inflamed, it spreads an acrid irritating fluid over the surrounding parts, and excites an inflammation in them. This, it not arrested, ends in ulceration, the expectoration becomes puriform and undistinguishable from that of consumption, and the patient dies with all the symptoms of phthisis. Indeed, before its nature was understood by the profession, it was thought the most fatal form of consumption, because it could be affected only to a very small degree, if at all, by medicines taken into the general system.

Dr. Warren, of Boston, proposes to cure it by inhaling powders of nitrate of silver and lycopodium as described by Dr. Chambers, of London, by means of an instrument for that purpose. Dr. Warren says:—

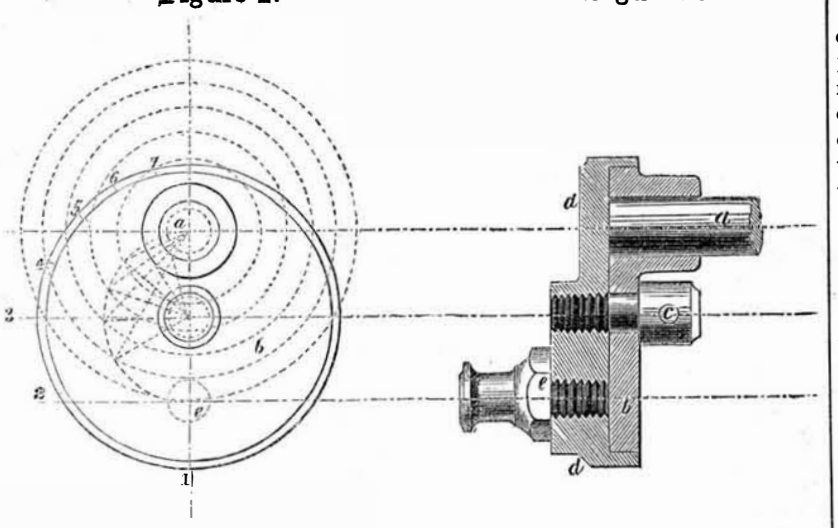
"In August 1849, I prepared the same powder; and not only in the cure of bronchial consumption, but in the treatment of the first and third stages of the tubercular form of this disease, I obtain results from it which I can derive from no other article.

I also use lycopodium in preparing powders in the same way, with sulphate of copper, crystals of nitrate of mercury (sometimes useful in secondary syphilitic troubles of the throat), iodide of potassium, &c.

For breathing powders of every kind, I have constructed a neat inhaler, which consists of a glass tube and a receiver—the latter being something like a tube vial perforated with holes around the lower end. The powder is poured into the receiver, which is placed in the larger tube, and twirled between the thumb and finger while inhaling. In the bronchial forms of consumption, the local disease is confined to the mucuous membranes; and in the tubercular type, the deposit begins upon the same tissue. Breathing medicine directly into the lungs is therefore the rational mode of attacking the local disease. The time must soon come when this form of treatment will be universally adopted. The mode of applying it will doubtless be improved, and the articles employed be multiplied. But we are on the right track, and the period not distant, in my judgement, when this fearful malady, taken in proper season, will be held as curable as the chronic diseases of the stomach or liver.

VARIABLE ECCENTRIC.

Figure 1. Figure 2.



The annexed engravings are a front view (figure 1) and a side section (figure 2) of a very simple and ingenious variable eccentric, by C. A. Holm, a London mechanic, and published from drawings in the London Artisan. It is designed for the throw of a crank or eccentric where there is not room for the ordinary slotted crank. *a* is the shaft from which the motion is communicated, on this shaft is keyed the eccentric disc, *b*. In the centre of this disc is a stud, *c*, which is screwed into the centre of another disc, *d d*. This latter disc has a pin, *e*, fixed in it, eccentric, from ing the shaft, *a*, to revolve, it is clear that the stroke given to the pin, *e*, will be double the radius from centre of *a* to centre of *e*. But if the screw, be slackened, the disc, *d d*, can be turned round until the centre of *e* is brought over the centre of *a*, when *e* will have no motion at all. And any point between these two will give a different stroke, as shown by the dotted lines in figure 1. Lines are engraved on the edge of the disc as 1, 2, 3, 4, 5, 6, and 7, which give the different ranges of stroke.

Every engineer and person acquainted with a steam engine will at once perceive that this is a very simple device for setting the throw of an eccentric and crank. Its value will at once be appreciated by the fraternity. It is a on any engine, and it is equally applicable to various forms of expansion gear as well as the eccentrics of steam engines.

Matches.

Many barbarous nations unacquainted with the methods in use among civilized people for procuring instantaneous fire, obtain it by rubbing dry pieces of hard against pieces of soft wood. Flint, steel, and tinder were employed for the same purpose, for centuries, but this age could not be content nor put up with such poor methods of obtaining quick fire. Matches were first made with their ends dipped in sulphur, which were inflamed by dipping them in a bottle containing phosphorus, which was called the "Devil's Bottle." The phosphorous bottle was first superseded by coating sulphur matches with the chlorate of potash, and by dipping them into a bottle containing asbestus moistened with sulphuric acid, they quickly inflamed. These matches were again superseded by the lucifer friction match which was inflamed by simple friction without the use of an acid or phosphorous bottle. The inventor of this match is unknown; he was a public benefactor to the human race, and deserves a monument. These matches are first dipped in sulphur, and into a composition of 16 parts gum arabic, 9 parts phosphorus, 14 parts nitre, 16 parts of manganese—by measure and then all worked up with water.—The mixture is made into a thick paste, into which the matches are dipped and then dried in a heated room made safe from contact with fire. Matches can be made without using sulphur, by dipping them into fused stearine instead of the sulphur. They spoil, however, by very little heat, and frequently miss fire. The chlorate of potash has been employed along with phosphorus, and the matches containing this salt, when drawn across a piece of sand paper, crackle with a series of small explosions. They are dangerous matches, and the mixing of the ingredients in a dry state is always attended with danger. Matches are very convenient, and are now an indispensable article in every household. It is not many years ago since we had to pay a sixpence for a box of matches not half the size of the one now sold for a cent. In Germany and Russia there are some very large lucifer match factories, the operatives in which were subject to dreadful diseases, caused by the phosphorus. This led an eminent Austrian chemist, Prof. Schrotter, to devote his time to obviate this evil, and at last he made the grand discovery of treating phosphorus by heat, so as to bring it into an equally efficient condition for matches, but perfectly safe and innoxious to the operative. His discovery was first exhibited at the World's Fair. A full description of the mode employed to render phosphorus amorphous, is described on page 187, Volume 7, Scientific American. Having had some enquiries about matches—the composition they are made of, &c., within a few weeks, the above will convey information on the subject to many who are now unacquainted with the same.

Paper Made from Leather Scraps.

We have received another sample of beautiful drab-colored paper, made by R. & D. H. H. Forbes, of Galt, C. W., from scraps of leather, straw, and rags. It is sent to us by Mr. D. Toland, of that place, an old subscriber to the Scientific American. This may be the kind of paper which the Editor of the "London Artizan" mentions as having been received by him, wrapped around some parcels from America, and which, he states, is the strongest sample, considering its thinness, he ever met with.

The Season to Cut Timber.

Ira E. Crouse, of Westminster, Md., having had considerable experience in the preservation of timber, says it should be sawn or cut out in rough for the purpose intended, as soon as possible after the tree is felled. If that cannot be done, the bark should all be taken clean off, as the worms generally breed between the bark and wood. The best time for cutting the timber, he states, is during the winter season.

Mysterious Cities.

Captain Alfred Fisher, of the Nantucket whale-ship "America," during his last voyage, visited the Tinian, one of the Ladrone Islands, and in one of his walks discovered ruins of what was once an extensive city, splendid still in all its hoary dilapidated condition. The buildings were all of stone. Huge columns, 20 and 50 feet high were scattered over the ground, and tall cocoa-nut trees spread their roots among the halls and temples of a race long since passed away, and of which we have no history, except the remnants of their handiwork, which tell us that they were far more civilized than the people who now inhabit the same region.

Iron Works at Rondout.

The "Examiner," a paper published at Rondout, N. Y., states that a plan has been proposed for erecting iron-works at that place, for the purpose of investigating and making experiments in producing iron from different ores, in order to bring about improvements in the processes of smelting iron, so as to reduce the cost of the manufacture. The plan is a rational and good one.

LITERARY NOTICES.

RURAL CHEMISTRY—This is the title of a book—the first American Edition—which justly maintains a high place among the Agricultural works of Britain, and which will, no doubt, soon be universally read and studied by our planters and farmers. The author of it is E. Solly, F. R. S., Prof. of Chemistry to the Horticultural Society of London. He is an eminent chemist, and as he is a member of the Royal Agricultural Society, of England, it was written for the benefit of Agriculturists as an elementary introduction to the study of the science of chemistry, in its relation to Agriculture and the Arts of life. In respect to this work, we can truly say it is one of the best, if not the very best, ever republished in our country, and no man devoted to agriculture, should be without it. It is published by H. C. Baird, Philadelphia, and is for sale by John S. Taylor, No. 143 Nassau street, this city.

PYROTECHNIST'S COMPANION—This is a volume of the "Practical Series," published also by Mr Baird, and for sale by Mr Taylor, and forms part of the library of useful works, along with the "Gilder and Painter's Companion," "Turner's Companion," "Practical Brewer," &c. This book teaches the whole art of making Fireworks—sky-rockets, wheels, &c., in short all the kinds of fires, from that of old Greece down to the simplest "pin wheel." The author of it is G. W. Mortimer, of London. Our people are much indebted to Mr. Baird, for the really useful works which he issues in such numbers from his enterprising press. His object is to present books, which will prove beneficial to the great majority of our countrymen. These works are all well printed, well illustrated with good wood engravings, and are sold at reasonable prices.

BIBLICAL REPERTORY AND PRINCETON REVIEW. The October number of this able Review is just published by W. H Mitchel, 265 Chestnut street, Philadelphia. This number concludes the present volume. We look upon this Review as one of the best, most learned, and dignified in our country.

NORTHWOOD OR LIFE NORTH AND SOUTH—Long & Brother, N. Y.—This is a re-print of a work published many years ago, at which time it was favorably received, and it has lost none of its attractions by appearing in a new edition, being prettily illustrated. The authoress, Mrs. S. J. Hale, is well known as editing the "Ladies' Magazine and Godey's Lady's Book."

MECHANICS

Manufacturers and Inventors.

A new Volume of the SCIENTIFIC AMERICAN commences about the middle of September in each year. It is a journal of Scientific, Mechanical, and other improvements; the advocate of industry in all its various branches. It is published weekly in a form suitable for binding, and constitutes, at the end of each year, a splendid volume of over 400 pages, with a copious index, and from five to six hundred original engravings, together with a great amount of practical information concerning the progress of invention and discovery throughout the world.

The Scientific American is the most widely circulated and popular journal of the kind now published. Its Editors, Contributors, and Correspondents are among the ablest practical scientific men in the world.

The Patent Claims are published weekly and are invaluable to Inventors and Patentees.

PRIZES—We solicit attention to the splendid Prizes offered for the largest number of subscribers, consisting of a SILVER PITCHER worth $60; a set of the ICONOGRAPHIC ENCYCLOPEDIA worth $35; DEMPSEY'S MACHINERY OF THE NINETEENTH CENTURY, and C. B. Stuart's great work upon the NAVAL DRY DOCKS OF THE UNITED STATES.

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